

REMARKS

Claims 1-20 are pending. The Office Action dated April 11, 2007 in this Application has been carefully considered. The above amendments and the following remarks are presented in a sincere attempt to place this Application in condition for allowance. Claim 19 has been amended in this Response. Reconsideration and allowance are respectfully requested in light of the above amendments and following remarks for those Claims not in condition for allowance.

Claim 19 stands rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. In light of the amendments submitted herewith, Applicant respectfully submits that the rejection has been overcome. Accordingly, Applicant respectfully requests that the rejection be withdrawn.

Rejected independent Claim 19, as now amended, more particularly recites the statutory subject matter of the present invention, namely, “[a] computer program product for determining the extent of movement of an object appearing within two or more images, the computer program product comprising a computer-readable medium with a computer program embodied thereon” (Emphasis added.) The amended Claim now defines a computer program product consistent with MPEP §2106.01. Support for this Amendment can be found, among other places, Page 5, lines 11-14, of the original Application. Accordingly, Applicant respectfully requests that the rejection be withdrawn.

Claims 1-20 stand rejected under 35 U.S.C. §103(a) by U.S. Patent No. 6,996,261 to DeCharms (“DeCharms”) in view of U.S. Patent No. 6,819,739 to Eppler (“Eppler”). Insofar as the references may be applied against the Claims, these rejections are traversed. Accordingly, Applicant respectfully requests that the rejections be withdrawn.

Rejected independent Claim 1 recites some of the distinguishing characteristics of the present invention, namely, “An apparatus for determining the extent of movement of an object appearing within two or more images, comprising: a first logic configured to classify one or more points in each of the images as either on-object or off-object; a second logic configured to compare the classified points in order to determine those points for which the classification differs; and a third logic configured to aggregate those points for which the classification differs in order to quantify a measure of the movement of the object.” (Emphasis added.)

Regarding Claim 1, DeCharms was cited as assertedly fully disclosing the following: an apparatus for determining the extent of movement of an object appearing within two or more images, comprising (1) a first logic configured to classify one or more points in each of the images as either on-object or off-object; (2) a second logic configured to compare the classified points in order to determine those points for which the classification differs. Eppler was cited as assertedly fully disclosing the apparatus comprising first logic, second logic, and third logic and generating a moving pattern of a spot on a target, which preferably corresponds to a processor configured to execute a calibration algorithm, the third logic configured to calibrate the system using the empirical data and the analytically-driven calibration data. The Examiner further stated that it would have been obvious to combine the teachings of DeCharms and Eppler in order to modify the invention of DeCharms according to the teaching of Eppler because it provides apparatus and method for calibration process, which is performed in a relatively short amount of time and accuracy.

DeCharms does not suggest, teach, or disclose “[a]n apparatus for determining the extent of movement of an object appearing within two or more images.” (Emphasis added.) Specifically, DeCharms teaches “a computer assisted method...provided for guiding brain activity training, the method comprising: measuring activity of one or more regions of interest of a subject.” Col. 9, lines

4-7. DeCharms teaches a bio-feedback form of manipulating the electrical activity of internal sections of the brain, a field non-analogous to the intra-frame video techniques for behavioral analysis of laboratory animals. The activity measured by DeCharms is clearly defined as including, but not limited to, “neuronal activity, blood flow, blood oxygenation, electrical activity, chemical activity, tissue perfusion, the level of a nutrient or trophic factor, the production or distribution of a trophic factor, the production, release, or reuptake of a neurotransmitter or neuromodulator, the growth of tissue such as neurons or parts of neurons, neural plasticity, and other physiological processes.” Col. 20, lines 32-39. These activities as defined by DeCharms are all internal to one or more stationary voxel regions of the brain and only produce graphs indicating the electrical activity level of a region of interest. (See FIG. 10). Therefore, the graphs of electrical activity taught in DeCharms do not contain “an object appearing in two or more images.” Applicant respectfully requests that the Examiner either distinctly identify and point out the elements in DeCharms considered anticipating this limitation or withdraw the rejection.

DeCharms also does not suggest, teach, or disclose “a first logic configured to classify one or more points in each of the images as either on-object or off-object.” (Emphasis added.) Specifically, DeCharms teaches “logic is provided for selecting how to achieve [electrical] activation of one or more regions of interest of a subject,” Col. 4, lines 45-46, and “determining the one or more regions of interest to be trained for the given condition” Col. 30, lines 38-39. DeCharms expressly states that a “[r]egion of interest or ROI or volume of interest as used herein, refers to a particular one or more voxels of the brain of a subject.” Col 23, lines 28-30. The one or more voxels of the brain are stationary. The graphs of electrical activity levels of the one or more voxels of the brain from the various regions of interest (ROI) of the subject do not comprise images of objects, as stated previously. (See FIG. 10). As such, the points in the images of graphs can not

be “either on-object or off-object.” Applicant respectfully requests that the Examiner expressly identify and point out specific teachings in DeCharms in which “one or more points in each of the images” is “either on-object or off-object, ” or in lieu of this evidence, accordingly withdraw the rejection.

Further, Eppler does not suggest, teach, or disclose “a third logic configured to aggregate those points for which the classification differs in order to quantify a measure of the movement of the object.” (Emphasis added.) According to the Examiner, Eppler teaches “a third logic configured to *calibrate* the system using the empirical data and the analytically-driven calibration data.” (Emphasis added.) Applicant is unsure exactly how the calibration of a rotating x-ray relates to the aggregation of “those points for which the classification differs in order to quantify a measure of the movement of the object.” Applicant respectfully submits that the calibration of a rotating x-ray laminography imaging system (Abstract) is not related or analogous to an intra-frame video technique for the behavioral analysis of laboratory animals. As taught by Eppler, “Current laminography calibration techniques trace the circular patterns on the target and gather empirical data for each circular pattern. The empirical data for each circular pattern is then processed to generate the LUT values needed to reproduce the circular pattern at run time.” Col. 2, lines 51-55. After a thorough review of Eppler, Applicant could not find any suggestions, teachings, or disclosure related to quantifying “a measure of the movement of the object.”

An advantage of an exemplary system amongst many configured according to at least some of the Claims of the current invention is that logic is used to analyze the movement of an object appearing in two or more images, increasing the speed and accuracy of the analysis and reducing the overall cost of a project requiring the determination of the movement of an object. A system configured according to DeCharms only results in the ability of a patient to control the electrical

activity level of a targeted region of interest in the patient's brain and is therefore not related to analyzing the movement of an object.

In view of the foregoing, it is apparent that the cited references do not teach the unique combination recited in Claim 1. Applicant therefore submits that Claim 1 is clearly and precisely distinguishable over the cited references in a patentable sense, and is therefore allowable over these references and the remaining references of record. Accordingly, Applicant respectfully requests that the rejection of Claim 1 under 35 U.S.C. § 103(a) to DeCharms and Eppler be withdrawn and that Claim 1 be allowed.

Claims 2-10 depend from and further limit Claim 1. Hence, for at least the aforementioned reasons, these Claims should be deemed to be in condition for allowance. Applicant respectfully requests that the rejections of the dependent Claims 2-10 also be withdrawn.

Regarding Claim 11, DeCharms was cited as assertedly fully disclosing the following: a method for determining the extent of movement of an object appearing within two or more images, comprising (1) classifying each point in the images as either on-object or off-object to create classified images; (2) comparing one classified image to at least one other classified image to determine those areas for which the classification differs; (3) measuring at least one neurological impulse; and (4) correlating the determination of those areas for which the classification differs to the measurement of the at least one neurological impulse (see claim 1, and column 25, lines 45-55 neurological condition, also column 91, lines 32-50, brain pulses).

DeCharms does not suggest, teach, or disclose the "movement of an object appearing within two or more images, comprising: classifying each point in the images as either on-object or off-object to create classified images." (Emphasis Added.) Instead, DeCharms expressly teaches against measuring moving objects. Specifically, DeCharms teaches controlling only the timing of

electrical brain measurements “so that, on average, successive brain measurements are taken at substantially the same point in the cycle with brain regions in substantially the same position.” (Emphasis added.) (Col. 91, lines 44-46). Further, the measurements taken are not of the movement of the brain itself, but instead are measurements of the electrical activity of the “corresponding scan volume voxels” internal to the brain. (Col. 91, line 36). Therefore, no images containing an object are created by the teachings of DeCharms. As previously stated, the graphs of electrical activity levels of the one or more voxels of the brain from the various regions of interest (ROI) of the subject do not anticipate images of objects claimed in the current invention (See FIG. 10). As such, points in the graphs can not be “either on-object or off-object” as recited in a limitation of the Claim. Applicant respectfully requests that the Examiner identify and point out specific teachings in DeCharms in which there is a teaching, suggestion, or disclosure, of “classifying each point in the images as either on-object or off-object to create classified images” or in lieu of this anticipating evidence, accordingly withdraw the rejection.

Claims 12-18 depend from and further limit Claim 11. Hence, for at least the aforementioned reasons, these Claims should be deemed to be in condition for allowance. Applicant respectfully requests that the rejections of the dependent Claims 12-18 also be withdrawn.

Applicant contends that the rejection of Claims 19 and 20 are traversed for at least some of the reasons that the rejection of Claim 11 is traversed. These reasons include DeCharms and Eppler not disclosing, teaching, or suggesting “classifying each point in the images as either on-object or off-object to create classified images.” (Emphasis added.) Applicant therefore respectfully submits that Claims 19 and 20 are clearly and precisely distinguishable over the cited references in any combination.

Applicant has now made an earnest attempt to place this Application in condition for allowance. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests full allowance of Claims 1-20.

Applicant does not believe that any fees are due; however, in the event that any fees are due, the Commissioner is hereby authorized to charge any required fees due (other than issue fees), and to credit any overpayment made, in connection with the filing of this paper to Deposit Account No. 50-0605 of CARR LLP.

Should the Examiner deem that any further amendment is desirable to place this application in condition for allowance, the Examiner is invited to telephone the undersigned at the number listed below.

Respectfully submitted,

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